

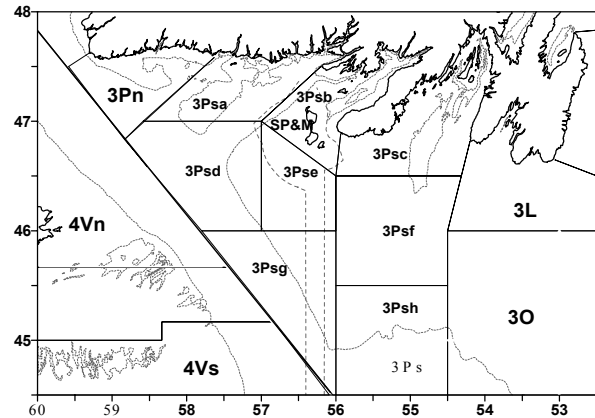
## Witch Flounder in Subdivision 3Ps

### Background

Witch flounder is a deepwater flatfish which reaches its northern limits in the Northwest Atlantic near Hamilton Bank off southern Labrador but extends as far south as the east coast of the southern USA. In Subdivision 3Ps, it is primarily distributed along the slope around St. Pierre Bank and in through Hermitage Channel off Hermitage, Connaigre and Fortune Bays on Newfoundland's south coast.

It is a long-lived, slow growing species and has been aged well over 20 years old, however, the number of age groups comprising the witch flounder stock in Subdivision 3Ps has been reduced substantially since the mid 1970's. Fish older than 13 years were rarely seen in either the commercial or survey catches by the early 1990's.

Spawning occurs over a rather protracted period usually extending from March through to September for most areas of the Northwest Atlantic. However, in this area spawning takes place early by comparison with highest intensity in the period January-March. During the winter and spring months it can be found in spawning concentrations along the continental slope of St. Pierre Bank especially in Halibut Channel and it is here at this time when most offshore commercial fishing operations occur and catch rates are generally highest.



### Summary

- Mean annual catch has been around 440 t from 1996-2002 compared to the 1983-1990 average of 800 t.
- Mean biomass index during 1996-2002 is about 75% of the 1983-1990 period.
- Biomass index reached its lowest point in 1999 but has been increasing since then.
- Little change in length compositions over the past 20 years.
- No indication of any measurable change in recruitment over the same 20 year period.
- Recent trends in the otter trawl landings may not be reflective of stock status as the fishery appears to have been prosecuted as a mixed American plaice-witch flounder fishery.

- American plaice bycatch rates in the directed witch flounder fishery ranged from 93% to 143% in 2000-2002.

### ***Species Biology***

The age structure of the population determined from DFO (up to 1994) and the Groundfish Enterprise Allocation Council (GEAC) (1998-2001) survey data appears to have remained relatively stable since 1983. Size structure based on these survey series also appears to be stable over time. As well, there has been little apparent change in growth pattern over the same period.

### ***The Fishery***

Landings of witch flounder in 3Ps generally fluctuated between 300 and 1000 t annually since the early 1970's (Fig. 1). From 1986-93, landings were relatively stable averaging around 1000 t annually. During the past five years annual landings averaged just over 500 t but were as low as 250 t in 1996. During the 1980's, although a short seasonal directed fishery often occurred, catches were primarily bycatches from other groundfish fisheries.

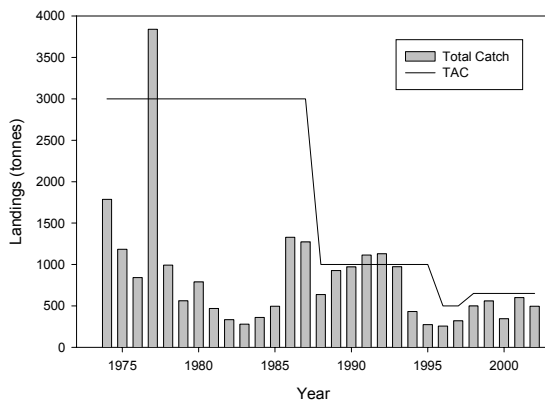


Figure 1 Landings and total allowable catches (TAC's) of witch flounder in NAFO Subdivision 3Ps during 1974-2002 (the 2002 landings are to October 2).

Landings from this stock have been taken mainly by Canadian trawlers fishing offshore along the southern slope of St. Pierre Bank. However, a significant portion of the landings is taken also by small Scottish/Danish seiners (20-50% annually over the past 5 years) and, to a lesser extent, gill-netters fishing primarily in Hermitage Channel near the Newfoundland south coast bays. Fishermen from St. Pierre and Miquelon also catch small amounts of witch flounder on St. Pierre Bank.

The fishing pattern for offshore Canadian participants since about 1993 has remained much the same with fishing being conducted mostly at the south-eastern tip of St. Pierre Bank. Although traditionally the otter trawl catches of witch flounder have been taken primarily in depths of about 200-400 meters (109-219 fath.), more recently the fishery has taken place mainly in very deep water to at least 900 meters (492 fath.).

Although most of the seine and gillnet landings have been from area 3Psb there has been some increase in the landings from 3Psa in recent years.

Recent trends in the otter trawl landings may not be reflective of stock status as the fishery appears to have been prosecuted as a mixed American plaice-witch flounder fishery. American plaice bycatch rates in the directed witch flounder fishery ranged from 93% to 143% in 2000-2002.

## Resource Status

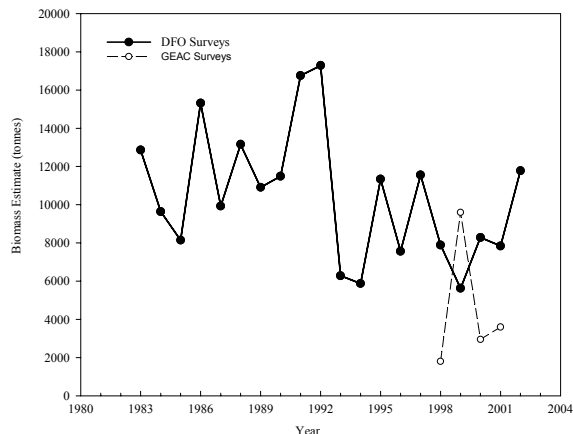


Figure 2 Biomass indices of witch flounder from surveys in NAFO Subdivision 3Ps.

Although survey stock size indices are highly variable (Fig. 2) the DFO survey biomass index during recent years suggests that the biomass is on average about 75% of the 1983-1990 average when catches were around 800 t. Abundance at length data do not indicate any increase in recruitment in recent years.

### Sources of uncertainty

Age data from the fishery and DFO surveys have not been available since 1994. This precludes the use of any age-based assessment tools needed to evaluate important stock parameters, for example, mortality, growth and maturity rates.

### Outlook

Stock size estimates during the last several years have fluctuated within a range which on average is about 75% of the average stock size during 1983-1990. Annual catches during the latter period have been about 800 t. Considering the apparent stability in distribution, length compositions, growth patterns and

recruitment observed over many years, fishing at recent catch levels should not be harmful to the stock.

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